REMARKS

1. Introduction

In the Office action claims 1-20 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of copending U.S. Patent Application 09/851,857. To overcome this rejection, Applicant has provided a terminal disclaimer, disclaiming any portion of the term of the present patent application that would extend beyond the term of a patent issued from U.S. Patent Application 09/851,857. Also, in the Office action claims 1, 2, 5, 7-20 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14, 16, and 21-25 of copending U.S. Patent Application 09/648,847. To overcome this rejection, Applicant has provided a terminal disclaimer, disclaiming any portion of the term of the present patent application that would extend beyond the term of a patent issued from U.S. Patent Application 09/648,847. As a result, Applicant respectfully contends that claim 18 defines an invention suitable for patent protection.

2. Rejections under 35 USC §103

In the Office action, claims 1 and 15 were rejected as allegedly being obvious by Horner et al. [hereinafter Horner], U.S. Patent No. 4,359,259 in view of Quick et al. [hereinafter Quick], U.S. Patent No. 4,296,994.

Claims 1 and 15, as amended, define a communication system, including, *inter alia*, a filtering system disposed in an optical path, the filtering system having first and second

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holographic elements each of which has a transform function associated therewith to encode a signal, defining an encoded signal, and decode the encoded signal to retrieve the signal for detection, with the transform function associated with the first holographic optical element matching the transform function associated with the second holographic element.

Applicant advocates this system to take advantage of a previously unrecognized characteristic of bulk hologram transform functions. Specifically, it was recognized that the inverse transform of the transform function associated with a bulk hologram is the transform function itself. See page 10, lines 7-13. Thus, propagating a wavefront through an even multiple of a single transform function, the original wavefront may be maintained. See id. Conversely, propagating a wavefront through an uneven multiple of a single transform function results in an encoded wavefront, which is virtually impossible to detect, much less demodulate, without unencoding the same. See id. In this manner, superior beam-sensor discrimination may be achieved. See id. As a result, with the present invention, communication may be achieved with a large number of channels of communication in a unit volume while preventing unwanted cross-talk between the communication channels. In addition, secure communication links between transmitter and receivers is be provided. (See page 2, lines 23-26).

The cited prior art is completely silent with respect to having a transform function associated with a first holographic optical element match a transform function

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associated with a second holographic element. For example, Quick is directed at utilizing holographic elements that focus the output from the holographic elements onto a single plane. This is seen throughout the description of the invention of Quick. Quick directs "optical signals at the output of the hologram to highly predictable focal point locations." (See column 2, lines 29-30). Referring to column 7, lines 46-48, it is stated that "the hologram is designed so that it transmits various colors to the same image point," again showing that Quick is directed towards focusing the output of the holographic elements to a single plane. However, the two transform functions, as taught by the claimed invention of the Applicant, are inverses of one another, thus allowing a signal to be encoded and sequentially decoded. The utilization of transform functions that are the inverses of one another to encode and decode a signal is an unforeseen benefit not recognized by Quick and results in the presently claimed invention of having two transform functions disposed in a common signal path. Thus, Quick does not direct his invention to a transform function associated with a first holographic optical element matching a transform function associated with a second holographic element. Moreover, none of the remaining cited prior art overcomes the deficiencies of Quick. Therefore, Applicant respectively contend that a *prima facie* case of obviousness is not present with respect to claims 1 and 15, as amended.

3. The Non-obviousness of the Dependent Claims

Considering that the dependent claims include all the features of the independent claims from which they depend, these claims are patentable to the extent that the

independent claims are patentable. Therefore, Applicants respectfully contend that the dependent claims define systems suitable for patent protection.

Applicants respectfully request examination in view of the remarks. A notice of allowance is earnestly solicited.

CERTIFICATE OF MAILING
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: P.O. Box 1450, Alexandria, VA 22313-1450.
Signed: Alexis Sheffield
Typed Name: Alexis Sheffield
Date: June 14, 2004

Respectfully Submitted,

Kenneth C. Brooks
Reg. No. 38,393

P.O. Box 10417
Austin, Texas 78766-1417
Telephone: 512-527-0104
Facsimile: 512-527-0107
patentsrus@earthlink.net

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